



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

TOCHER

Serial No.: 10/802,291

Filed: March 16, 2004

Atty. File No.: 5134-2

For: "HABITAT FRIENDLY, PRESSURE
CONVERSION, WIND ENERGY
EXTRACTION"

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Sir:

This is a petition to make the above-identified U.S. patent application special under 37 CFR §1.102(c) because the invention will materially contribute to the development or conservation of energy resources, particularly related to wind energy. In support of this petition, the following is provided based on the subject application.

Abstract:

A habitat friendly, pressure conversion, wind energy extraction system is disclosed for safely extracting usable energy from wind. The system includes one or more shrouds or concentrator wings that convert the dynamic pressure of wind into relatively lower static pressure and thereby induces a vacuum that draws wind into a turbine centralized within the shrouds or concentrator wings. As such, the turbine impellor blades may be significantly smaller than the large diameter rotor blades of current popular designs and may be enclosed within the shrouds or concentrator wings that present themselves as highly visible objects and as such are easily avoided by birds in flight. The novel system in particular includes a device and method of airflow regulation than minimizes or prevents the stalling, or the generation of a turbulent flow of wind over or between the shrouds or concentrator wings of the invention. This stalling has been shown to occur when airflow is quickly accelerated by force of vacuum and drawn out of the turbine shroud which then mixes with and

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| CERTIFICATE OF MAILING | |
| <p>I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO THE COMMISSIONER FOR PATENTS P.O. BOX 1450, ALEXANDRIA, VA 22313-1450 ON <u>1/26/04</u></p> | |
| <u>SHERIDAN/ROSS P.C.</u> | |
| BY: |  |

disturbs the otherwise smooth flow of wind over or between the shrouds or concentrator wings. The system may also include an aerobrake that responds quickly to protect the impellor blades or associated mechanisms from overspeeding or exceeding other design limitations under gusting or violent wind conditions. The invention may also include a method of guiding elements of the invention to orient appropriately into prevailing winds, and a means to support elements of the invention, without unduly impeding the free flow of wind. Other advantages and objects are as well disclosed that increase safety and efficiency, increase installation potential of the invention, reduce costs and expenses, and minimize negative environmental impact.

Novel Features Claimed:

1. Airflow Regulator/Airflow Regulation

The flow regulator 18 directs the wind flow outwards from the outlet of the turbine shroud 14 to prevent aerodynamic stalling of the concentrator wings 12 that would result in loss of suction necessary to forcibly draw wind out of turbine shroud 14. Flow regulator 18, prevents this stalling that would otherwise occur especially in strong or gusting winds as the jet of wind pulled from the outlet of turbine shroud 14 interrupts the smooth flow of wind over and between concentrator wings 12. None of the cited prior art suggests the use of such a flow regulator 18. The article cited in the patent application by the University of Udine entitled "A Partially Static Turbine – first experimental results", describes the problem but proposes a re-design of the impellor within the turbine shroud, which he believes will correct the problem. Using a separate flow regulator device is not proposed or anticipated.

2. Aerobrake/Aerobraking

Aerobrake 20 further uses flow regulator 18 for the purpose of aerobraking, or protecting the impellor or generator from damage in very high wind or gusting conditions. Aerobrake 20 works by allowing the concentrator wings 12 and the turbine shroud 14 to be pushed by the gusting winds towards flow regulator 18 restricting the flow of wind out of turbine shroud 14 and thereby protecting the impellor and generator from damage by overspeeding. Several different types of aerobrakes are cited in the present application all of which are in some way attached to the rotor blades. None of the prior arts suggests any means for restricting the flow of air through the impellor in the manner described.

3. Reducing aerodynamic drag by extending the impellor driveshaft out of the flow regulator and into the unobstructed wind flow through the turbine shroud.

This operates as the heading describes. It is useful because it allows the wind to flow freely through the turbine shroud without obstruction by the generator or power converter. The prior art suggest providing low aerodynamic drag housings for the generator but no means to physically remove the generator from the turbine housing or use a flow regulator to remove the generator from the high speed wind flow.

4. Downwind guidance

Downwind guidance 30 supports elements of the invention using a single lee support 32 structure that extends downwind and out of the higher speed wind flow and then turns downwards and attaches to a swivel that allows the invention to orient properly into the wind. None of the prior art describes such a simple system to guide a wind turbine into wind that places the elements of the guidance system on the downwind side of the rotor or impellor while having no need for additional wind sensors or motor drives or wind vanes to maintain a suitable alignment of the turbine into the wind.

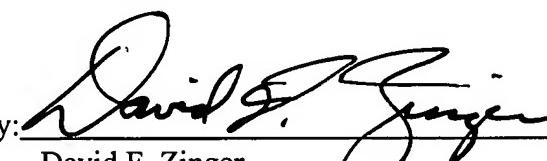
No fee is believed due for filing this petition. Please charge Deposit Account No. 19-1970 for any fee that might be due related to this petition.

Wherefore, it is respectfully requested that this application be accorded special status and prompt notification thereof be provided.

Respectfully submitted,

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